REMARKS

Reconsideration of the rejections set forth in the Office Action dated January 19, 2007, is respectfully requested. By this Amendment, new claim 16-20 has been added and claims 1 and 10 have been amended. Currently, claims 1-20 are pending in this application.

Objection to the drawings

The Examiner objected to the drawings because several reference numerals were used to designate different parts in different drawings. Applicants submit herewith a Drawing Correction Authorization Request in which reference numbers 90 and 92 in Fig. 8 have been changed to 88 and 89, respectively. Conforming amendments have been made to Paragraph [0067]. These amendments do not add new matter to this application. The Examiner is respectfully requested to approve the drawing corrections and the conforming changes to the specification when acting on this Amendment.

Objection to the specification

The Examiner objected to the specification because of a minor informality. Specifically, the Examiner indicated that the reference character 96 was referred to in the specification as referring to a storage topology module, but was shown in Fig. 10 as attached to a dataset location module. Applicants have amended Fig. 10 to include both a dataset location module 96 and a storage topology module 99. Paragraphs 108 of the specification has also been amended. This amendment does not add new matter because meta-manager service 38 was clearly described in paragraphs 108-109 as containing both of these modules.

For example, paragraph 108 as initially presented stated that the data transfer software in the meta manager would "ascertain the location of the data that will be transferred" and "determine the storage topology associated with the storage subsystems where the data will be pre-conditioned." It is clear that the data transfer software would thus interact with a dataset location module to ascertain the location of the data to be transferred, and would also interact with a storage topology module to determine the storage topology associated with the storage subsystems. The Examiner is respectfully requested to approve these changes when acting on this amendment.

Rejection under 35 USC 102

Claims 1, 3, 7-8, 10, and 12-13 were rejected under 35 USC 102 as anticipated by Stallmo et al. (U.S. Patent No. 5,875,456). This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

This application relates to a way in which data may be prepared (preconditioned) to be transferred over high-bandwidth circuits on a circuit-switched network. (Specification at page 3, Par. 9). When a large file is to be transferred over a fast connection such as one or more wavelengths on an optical network, the file to be transferred may be broken up into multiple pieces, and the pieces distributed to multiple storage subsystems. Id. When the circuit is ready, the preconditioned data is read out of each of the storage subsystems and multiplexed onto the wavelength to fill the wavelength. Since a given storage system may not be able to output data fast enough to fill a 40Gb/s wavelength or multiple such wavelengths, preconditioning the data enables more of the optical capacity to be filled. The meta-manager service coordinates the process of locating the data, preconditioning the data, and transferring the data on the network.

Claim 1 recites a method of preconditioning data to be transferred on a switched underlay network, including causing data to be moved from a first storage subsystem having a first data read rate to a plurality of second storage subsystems having a collective read rate of greater magnitude than the first data read rate to precondition the data to be transferred on the switched underlay network, and causing the data to be read out of the plurality of second storage subsystems at the collective read rate onto the switched underlay network. Stallmo does not teach or suggest a method of this nature.

Stallmo teaches a RAID system that will enable disks to be added and removed. (Stallmo Abstract, Col. 2, line 11 to Col. 3, line 39). Fig. 1 of Stallmo shows a computer system having a host computer 102 connected to four disks. A host SCSI bus 104 connects the host computer 102 to a disk array control module (controller) 106. The control module is connected to the disks via a SCSI bus 108. (Stallmo at Col. 7, lines 32-40). Fig. 2 is similar to Fig. 1, except that there are five disks. (Stallmo at Col. 8, lines 13-18).

Essentially, the system disclosed by Stallmo is a device that may be used by one of the storage subsystems 88 shown in Fig. 8. As described in applicant's specification at Paragraph 67, each storage subsystem 88 has a number of discs or other storage resources 89 that may be used to store data. The data meta-manager service enables the data to be preconditioned by

being spread between these multiple storage subsystems so that the data may be read out onto the switched underlay network.

Stallmo therefore does not teach or suggest preconditioning data to be transferred on a switched underlay network. In the rejection the Examiner indicated that no patentable weight was given to the "intended use of the preconditioning," presumably because the limitation appeared in the preamble. Applicants have amended claim 1 to recite that the step of "causing data to be moved from a first storage subsystem ... to a plurality of second storage subsystems" is done to precondition the data to be transferred on the switched underlay network. As such the "preconditioning" is not an intended use, but is rather a part of the recited first step of the method. The Examiner is requested to afford patentable weight to this term, which is defined in the specification for example at Page 3, Par. 9 where applicants recite that "the meta-manager may precondition the file to be transferred by breaking it into multiple pieces and distributing those pieces between multiple storage subsystems..."

Stallmo also does not teach or suggest the step of causing the data to be read out of the plurality of second storage subsystems at the collective read rate onto the switched underlay network. Rather, Stallmo teaches disks connected to a SCSI bus. While the discs clearly read out onto the SCSI bus, a SCSI bus is not a switched underlay network. (See Specification at page 34).

Rejection under 35 USC 103

Claims 2, 4-6, 8-9, and 14-15 were rejected under 35 USC 103 as unpatentable over Stallmo. The dependent claims are patentable for at least the reasons set forth above in connection with the independent claims.

New Claims

The new claims define additional features not found in Stallmo and which further distinguish the RAID controller disclosed in Stallmo from the system described in this application. These claims are supported by the specification as originally filed, for example, at Par. 34 (claim 16); Par 32 (claim 17); Fig. 8 (Claim 18); and Par. 75 (Claims 19-20). Entry of these claims and consideration of the claims on the merits is respectfully requested.
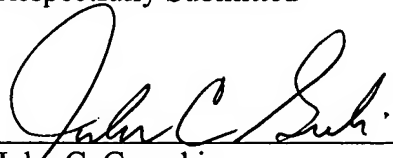
Conclusion

In view of foregoing claim amendments and remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

If any fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 502246 (Ref: NN-16836).

Respectfully Submitted

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Figure 8

Figure 9

150
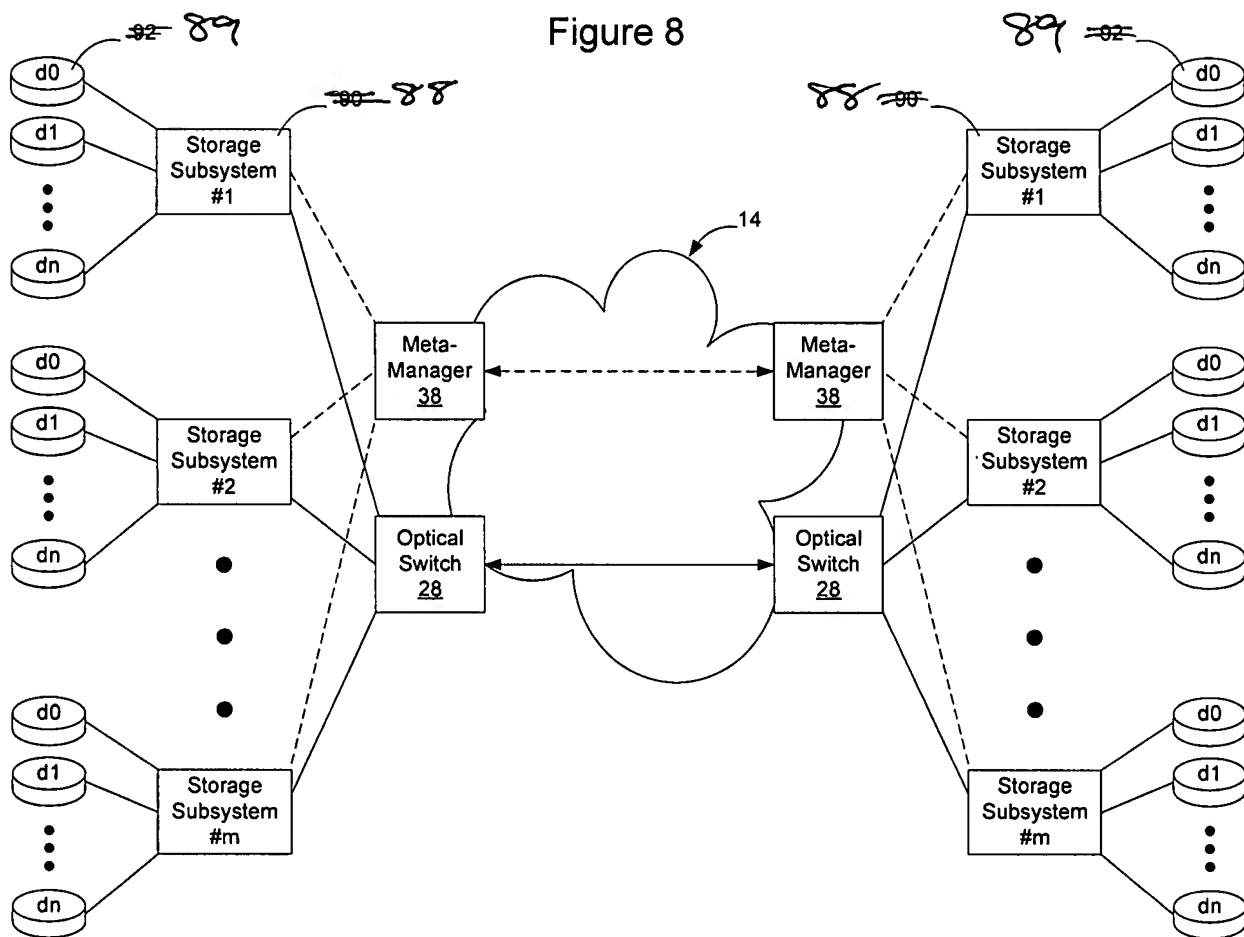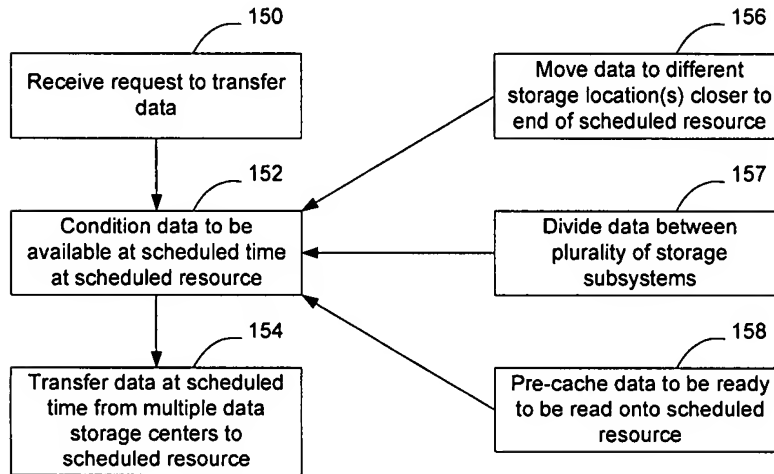Receive request to transfer data

156
Move data to different storage location(s) closer to end of scheduled resource

152
Condition data to be available at scheduled time at scheduled resource

157
Divide data between plurality of storage subsystems

154
Transfer data at scheduled time from multiple data storage centers to scheduled resource

158
Pre-cache data to be ready to be read onto scheduled resource

Figure 10

38

Meta-Manager Service

Meta-manager software 97

Data transfer software 98

Processor 90

Control Logic 92

I/O Ports 91

Dataset location 93

Network topology 94

Transfer schedule 95

Dataset location 96

Storage Topology 99